



Steve Hutchings
Murray Rix (Northern Ltd).
Unit 33c Vauxhall Ind. Est.
Greg Street
Reddish
Stockport
SK5 7BR

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

e: MurrayRix

Analytical Report Number : 18-85744

Project / Site name:	Ravenhead	Samples received on:	16/05/2018
Your job number:		Samples instructed on:	16/05/2018
Your order number:	18-099	Analysis completed by:	23/05/2018
Report Issue Number:	1	Report issued on:	23/05/2018
Samples Analysed:	5 soil samples		

Signed: 

Jordan Hill
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Your Order No: 18-099

Lab Sample Number	962588	962589	962590	962591	962592			
Sample Reference	76782	76783	76784	76785	76786			
Sample Number	Subbase Type1-1	Subbase Type1-2	Subbase Type1-3	Subbase Type1-4	Subbase Type1-5			
Depth (m)	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied			
Date Sampled	11/05/2018	11/05/2018	11/05/2018	11/05/2018	11/05/2018			
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	2.0	2.5	2.6	2.4	2.2
Total mass of sample received	kg	0.001	NONE	0.45	0.52	0.53	0.47	0.54

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.2	8.0	7.9	6.8	7.5
Total Sulphate as SO ₄	mg/kg	50	MCERTS	520	660	580	550	620
Total Sulphate as SO ₄	%	0.005	MCERTS	0.052	0.066	0.058	0.055	0.062
Acid Soluble Sulphur	%	0.003	NONE	0.017	0.022	0.019	0.018	0.021
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	400	540	550	530	550
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.20	0.27	0.28	0.26	0.28
Water Soluble Sulphur	%	0.0001	NONE	0.0132	0.0179	0.0185	0.0176	0.0185
Total Potential Sulphate	mg/kg	30	NONE	10000	13000	14000	11000	19000
Total Potential Sulphate	%	0.003	NONE	1.04	1.30	1.36	1.13	1.89
Oxidisable Sulphide (as SO ₄)	%	0.002	NONE	0.986	1.23	1.31	1.07	1.83
Oxidisable Sulphide (as SO ₄)	mg/kg	20	NONE	9900	12000	13000	11000	18000
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	0.5	MCERTS	5.2	4.9	5.2	4.7	6.1
Total Sulphur	mg/kg	50	MCERTS	3500	4300	4500	3800	6300
Total Sulphur	%	0.005	MCERTS	0.346	0.432	0.455	0.376	0.629
Organic Matter	%	0.1	MCERTS	0.9	1.1	1.0	1.0	1.3

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	28	37	39	37	38
Magnesium (leachate equivalent)	mg/l	2.5	NONE	14	19	19	18	19



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* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
962588	76782	Subbase Type1-1	None Supplied	Light grey sand with gravel.
962589	76783	Subbase Type1-2	None Supplied	Light grey sand with gravel.
962590	76784	Subbase Type1-3	None Supplied	Light grey sand with gravel.
962591	76785	Subbase Type1-4	None Supplied	Light grey sand with gravel.
962592	76786	Subbase Type1-5	None Supplied	Light grey sand with gravel.

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Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Acid Soluble Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, and MEWAM 2006 Methods for the Determination of Metals in Soil"	L038-PL	D	NONE
Chloride, water soluble, in soil	Determination of Chloride colorimetrically by discrete analyser.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests. 2:1 extraction.	L082-PL	D	MCERTS
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES.	In-house method based on TRL 447	L038-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Organic matter (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests"	L009-PL	D	MCERTS
Oxidisable Sulphide in soil	Determination of oxidisable sulphide in soil by calculation from total sulphur and total sulphate.	In-house method based on TRL 447		D	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Total potential sulphate in soil	Determination of total potential sulphate in soil by calculation from total sulphur.	By calculation - In-house method based on TRL 447 report.	L038-PL	D	NONE
Total potential sulphate in soil (Percentage)	Determination of total potential sulphate in soil by calculation from total sulphur - expressed as a percentage.	By calculation - In-house method based on TRL 447 report.	L038-PL	D	NONE
Total sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
Total Sulphate in soil as %	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests"	L038	D	MCERTS
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, and MEWAM 2006 Methods for the Determination of Metals in Soil	L038-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.